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## **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

- 2. Authorization for this examiner's amendment was given in a telephone interview with Mr. David Evans on May 18, 2009.
- 3. The application has been amended as follows:

## A. Claim 1 has been amended to read as follows:

1. (Currently amended) A compound of the formula I:

or

$$X_{1}O$$
 $X_{2}$ 
 $X_{3}$ 
 $Z$ 
 $X_{4}$ 

wherein

Z is H or lower alkyl;

A has the structure:

$$R_{1}$$
 $R_{2}$ 
 $R_{3}$ 
 $R_{4}$ 

$$R_1$$
 $R_2$ 
 $R_3$ 
 $R_4$ 

$$R_{1}$$
 $R_{2}$ 
 $R_{3}$ 
 $R_{4}$ 

or

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in which

q is 0-3;

 $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$  and  $R_6$  independently are hydrogen, alkyl, amino, alkylamino, dialkylamino, nitro, urea, cyano, thio, alkylthio, hydroxy, alkoxy, alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylamino, aryloxycarbonylamino, alkylsulfinyl, sulfonyl, alkylsulfonyl, aralkylsulfonyl, arylsulfonyl, heteroarylsulfonyl, alkanoyl, alkanoylamino, cycloalkanoylamino, aryl, arylalkyl, halogen, or alkylphosphonyl, and  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  are substituted with 0-3 substituents selected from the group consisting of hydroxy, carboxyl, lower alkoxycarbonyl, lower alkyl, nitro, oxo, cyano, carbocyclyl, heterocyclyl, heteroaryl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkanoylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower alkanoyl, aryl, aroyl, heterocyclylcarbonyl, halogen and lower alkylphosphonyl; or two of  $R_1$  to  $R_5$  together form a carbocycle or heterocyclic ring; provided that  $R_1$  or  $R_5$  is not hydrogen;

Y is H, OH, alkoxy, alkoxyalkoxy, aryloxy, alkylaminoalkoxy, dialkylaminoalkoxy, alkylamino, arylamino, heterocyclyl or heteroarylalkyl, where each of the forgoing may be substituted or unsubstituted;

X<sub>1</sub> is C(O)NRaRb wherein Ra and Rb, individually, is hydrogen or alkyl, alkoxy, aryl, heterocyclyl, heteroaryl, substituted with 0-4 substituents selected from the group consisting of halogen, hydroxy, amino, carboxyl, nitro, cyano, heterocylyl, heteroaryl, aryl, aroyl, aryloxy, aralkyl, aralkyloxy, aryloxycarbonyl, aralkyloxycarbonyl, alkylenedioxy, lower alkoxycarbonyl, lower alkyl, lower alkenyl, lower alkynyl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower alkylphosphonyl, aminosulfonyl lower alkyl, hydroxy lower alkyl, alkylsulfinyl lower alkyl, alkylsulfonyl lower alkyl, alkylsulfonyl lower alkyl, alkylsulfonyl lower alkyl, heteroarylamino lower alkyl, halo lower alkyl, and alkoxy lower alkyl; wherein said heterocyclyl, heteroaryl, aryl, aroyl, aryloxy, aralkyl, aralkyloxy, aryloxycarbonyl and aralkyloxycarbonyl substituent is optionally substituted with halogen, hydroxyl, amino, carboxyl, nitro, cyano, alkyl and alkoxy; and wherein Ra and Rb together with the nitrogen to which they are attached form a heterocyclyl or heteroaryl group substituted with 0-5 substituents R or Rd; wherein Rd has the structure

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$$X_2$$
 $X_2$ 
 $X_3$ 
 $X_2$ 
 $X_3$ 
 $X_2$ 
 $X_3$ 

wherein X' is a divalent linker selected from the group consisting of C(O)NRa, C(O) or a bond;

R is hydrogen or alkyl, alkoxy, aryl, heterocyclyl or heteroaryl, substituted with 0-4 substituents selected from the group consisting of halogen, hydroxy, amino, carboxyl, nitro, cyano, heterocylyl, heteroaryl, aryl, aroyl, aryloxy, aralkyl, aralkyloxy, aryloxycarbonyl, aralkyloxycarbonyl, alkylenedioxy, lower alkoxycarbonyl, lower alkyl, lower alkenyl, lower alkynyl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower alkylphosphonyl, aminosulfonyl lower alkyl, hydroxy lower alkyl, alkylsulfinyl lower alkyl, alkylsulfonyl lower alkyl, alkylthio lower alkyl, heteroarylthio lower alkyl, heteroaryloxy lower alkyl, heteroarylamino lower alkyl, halo lower alkyl, and alkoxy lower alkyl; wherein said heterocyclyl, heteroaryl, aryl, aroyl, aryloxy, aralkyl, aralkyloxy, aryloxycarbonyl and aralkyloxycarbonyl substituent is optionally substituted with halogen, hydroxyl, amino, carboxyl, nitro, cyano, alkyl and alkoxy;

 $X_2$  and  $X_3$  are each independently hydrogen, halogen, hydroxy, amino, carboxyl, nitro, cyano, or substituted or unsubstituted alkyl, aryl, heterocylyl, heteroaryl, aryl, aroyl, aryloxy, alkylenedioxy, lower alkyl carbonylamino, lower alkenyl carbonylamino, aryl carbonylamino, arylamino carbonylamino, lower alkoxy carbonylamino, lower alkylamino carbonylamino, arylamino carbonylamino, lower alkoxycarbonyl, lower alkyl, lower alkenyl, lower alkynyl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower alkylphosphonyl, aminosulfonyl lower alkyl, hydroxy lower alkyl, alkylsulfinyl lower alkyl, alkylsulfinyl lower alkyl, alkylsulfonyl lower alkyl, heteroarylthio lower alkyl, heteroaryloxy lower alkyl, heteroarylamino lower alkyl, halo lower alkyl, alkoxy lower alkyl; and wherein  $X_1$  and  $X_2$  or  $X_3$  may be bonded together to form a heterocylic or heteroaryl ring(s); or  $X_3$  and Z together form a heterobicyclic ring;

or a pharmaceutically acceptable salt thereof.

## B. Claim 2 has been amended to read as follows:

2. (currently amended) A compound according to claim 1, having the formula:

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$$X_1 \cap X_2$$
 $X_3 \cap X_4$ 

wherein

Z is H or lower alkyl;

A has the structure:

$$R_1$$
  $R_5$   $R_4$   $R_4$ 

in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$ , independently are hydrogen, alkyl, amino, alkylamino, dialkylamino, nitro, cyano, thio, alkylthio, hydroxy, alkoxy, alkoxyalkyl, alkoxycarbonyl, alkylsulfinyl, sulfonyl, alkylsulfonyl, alkanoyl, aryl, arylalkyl, halogen, or alkylphosphonyl, and  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  are substituted with 0-3 substituents selected from the group consisting of hydroxy, carboxyl, lower alkoxycarbonyl, lower alkyl, nitro, cyano, heterocylyl, heteroaryl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower alkanoyl, aryl, halogen and lower alkylphosphonyl; provided that  $R_1$  or  $R_5$  is not hydrogen;

Y is H, OH, alkoxy, alkoxyalkoxy, aryloxy, aminoalkylalkoxy, diaminoalkylalkoxy, alkylamino, arylamino, heterocyclyl or heteroarylalkyl, where each of the forgoing may be substituted or unsubstituted;

X<sub>1</sub> is C(O)NRaRb wherein Ra and Rb, individually, is hydrogen or alkyl, aryl, heterocyclyl, heteroaryl, substituted with 0-4 substituents selected from the group consisting of halogen, hydroxy, amino, carboxyl, nitro, cyano, heterocylyl, heteroaryl, aryl, aroyl, aryloxy, alkylenedioxy, lower alkoxycarbonyl, lower alkyl, lower alkenyl, lower alkynyl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower

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alkanoyl, lower alkylphosphonyl, aminosulfonyl lower alkyl, hydroxy lower alkyl, alkylsulfinyl lower alkyl, alkylsulfonyl lower alkyl, alkylthio lower alkyl, heteroarylthio lower alkyl, heteroaryloxy lower alkyl, heteroarylamino lower alkyl, halo lower alkyl, alkoxy lower alkyl; and wherein Ra and Rb together with the nitrogen to which they are attached may form a heterocyclyl or heteroaryl group substituted with 0-4 substituents R;

R is hydrogen or alkyl, alkoxy, aryl, heterocyclyl or heteroaryl, substituted with 0-4 substituents selected from the group consisting of halogen, hydroxy, amino, carboxyl, nitro, cyano, heterocylyl, heteroaryl, aryl, aroyl, aryloxy, aralkyl, aralkyloxy, aryloxycarbonyl, aralkyloxycarbonyl, alkylenedioxy, lower alkoxycarbonyl, lower alkyl, lower alkenyl, lower alkynyl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower alkylphosphonyl, aminosulfonyl lower alkyl, hydroxy lower alkyl, alkylsulfinyl lower alkyl, alkylsulfonyl lower alkyl, alkylthio lower alkyl, heteroarylthio lower alkyl, heteroaryloxy lower alkyl, heteroarylamino lower alkyl, halo lower alkyl, and alkoxy lower alkyl; wherein said heterocyclyl, heteroaryl, aryl, aroyl, aryloxy, aralkyl, aralkyloxy, aryloxycarbonyl and aralkyloxycarbonyl substituent is optionally substituted with halogen, hydroxyl, amino, carboxyl, nitro, cyano, alkyl and alkoxy;

X<sub>2</sub> and X<sub>3</sub> are each independently hydrogen, halogen, hydroxy, amino, carboxyl, nitro, cyano, or substituted or unsubstituted alkyl, aryl, heterocylyl, heteroaryl, aryl, aroyl, aryloxy, alkylenedioxy, lower alkyl carbonylamino, lower alkenyl carbonylamino, aryl carbonylamino, arylalkyl carbonylamino, lower alkoxy carbonylamino, lower alkylamino carbonylamino, arylamino carbonylamino, lower alkoxycarbonyl, lower alkyl, lower alkenyl, lower alkynyl, lower alkylthio, lower alkoxy, lower alkylamino, lower alkylsulfinyl, lower sulfonyl, lower alkylsulfonyl, lower alkanoyl, lower

alkylphosphonyl, aminosulfonyl lower alkyl, hydroxy lower alkyl, alkylsulfinyl lower alkyl, alkylsulfonyl lower alkyl, alkylthio lower alkyl, heteroarylthio lower alkyl, heteroaryloxy lower alkyl, heteroarylamino lower alkyl, halo lower alkyl, alkoxy lower alkyl; and wherein  $X_1$  and  $X_2$  or  $X_3$  may be bonded together to form a heterocylic or heteroaryl ring(s);

or a pharmaceutically acceptable salt thereof.

### C. Claim 6 has been canceled.

#### D. Claim 30 has been added which reads as follows:

30. (new) The compound of claim 1 that is:

- E. Claim 31 has been added which reads as follows:
- 31. (new) A compound of the formula:

wherein:

R is

R is

R is

and R' is

R is

and R' is

R is

and R' is

R is

$$H_3C$$

and R' is

R is

and R' is

R is

R is

and R' is

$$H_2N$$
  $O$ 

R is

R is

and R' is

$$NO_2$$
;

R is

and R' is

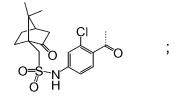
R is

and R' is

R is

R is

and R' is



R is

and R' is

R is

R is

and R' is

and R' is

R is

and R' is

R is

and R' is

R is

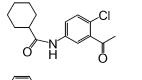
R is

and R' is

R is

R is

and R' is



R is

R is

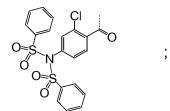
and R' is

and R' is

R is

R is

and R' is



R is

and R' is

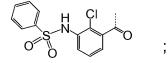
R is

and R' is

R is

R is

and R' is



R is

and R' is

R is

and R' is

R is

R is

and R'

R is

and R'

R is

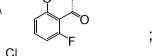
and R' is

R is

and R' is

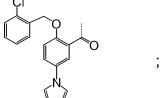
R is

and R' is



R is

and R' is



R is

and R' is

R is

and R' is

R is

R is

H CI S N O

R is

and R' is  $F_3C$ 

R is

and R' is

and R' is

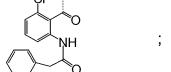
N CI O O O

R is

and R' is

R is

and R' is



R is

and R' is

R is

R is

and R' is

R is

R is

and R' is

R is

R is

and R' is

R is

$$H_2N^{'}$$

and R' is

R is

and R' is

R is

$$H_3C$$
  $-HN$ 

and R' is

R is

and R' is

and

R is

and R' is

R is

R is

and R' is

R is

R is

and R' is

R is

and R' is

R is

and R' is

R is

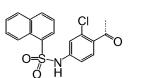
$$\bigcirc$$
N

and R' is

R is

R is

and R' is



R is

and R' is

R is

$$\bigcap_{i \in \mathcal{N}} \mathcal{N}_i$$

R is

and R' is

R is

R is

and R' is

R is

$$\bigcirc$$

and R' is

R is

R is

and R' is

R is

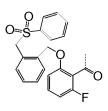
R is

and R' is

R is

R is

and R' is



R is

R is

and R' is

R is

and R' is

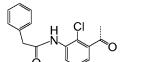
R is

and R' is

R is

$$\bigcirc$$
N

and R' is



R is

and R' is

R is

and R' is

R is

R is

and R' is

R is

R is

and R' is

R is

and R' is

R is



and R' is



, and

R is

and R' is

F. Claim 32 has been added which reads as follows:

32. (new) The compound:

G. Claim 33 has been added which reads as follows:

33. (new) The compound:

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## **REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance:

- 4. Based upon the response filed March 2, 2009, the rejections under 35 U.S.C. 112, 2<sup>nd</sup> paragraph and 35 U.S.C. 102(b) based upon Veigl et al. are withdrawn.
- 5. Applicants preserve the right to file divisional applications drawn to the nonelected subject matter.
- 6. The claims have been amended to the read upon the elected invention.
- 7. New claims 30-33 have been added. At pages 31-72 of the specification, Table 1 and 2, support for these compounds are found.
- 8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
- 9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zinna N. Davis whose telephone number is 571-272-0682.
- 10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Zinna Northington Davis/
Zinna Northington Davis
Primary Examiner
Group 1600-AU 1625

Znd 05.19.2009